

gree the heat of the 13th of July 1808, which was considered to be the highest on record in this country.

“On the relative dynamic value of the Degrees of the Compass; and on the Cause of the Needle resting in the Magnetic Meridian.” By Sir Graves C. Haughton, K.H., M.A., F.R.S., Foreign Associate of the Institute of France.

By ascertaining the distances at different azimuths at which a bar magnet placed with its axis directed to the centre of a magnetic compass needle caused the needle to assume the position in which its axis was in the same line with that of the magnet, the author found that these points of distance form a peculiar curve, which was nearest to the centre of the magnet at the east and west azimuths, and receded from it as it advanced to the north and south; and was twice the distance from it at the north than at the south azimuths. From this and other experiments he infers that the value of every degree of the compass is inversely as the square of the length of the ordinate or co-ordinate passing through it, the abscissa being considered as zero; and that the magnetic needle does not rest in the magnetic meridian in consequence of polar attraction, but is impelled in that direction by the effect of repulsion, from the east or west, and that its natural position is the result of an equilibrium between the eastern and western repulsions. On the other hand, the return of the needle, when it is placed in the reverse position, that is, when made to deviate  $180^\circ$  from its natural position, is the result of an attraction towards the east and west positions; the force of attraction in that case being quadruple the force of repulsion in the former case. He is consequently led to the conclusion that the operation of terrestrial magnetism is totally different from that of an artificial magnet, in which latter case the attractive and repulsive forces are exactly equal.

“Remarks on the Extractive Material of Urine, and on the Excretion of Sulphur and Phosphorus by the Kidneys in an unoxidized state.” By Edmund Ronalds, Ph.D., Giessen. Communicated by Golding Bird, M.D., F.R.S.

In the course of an experimental inquiry in which the author was engaged with a view to ascertain whether larger quantities of carbon were discharged by the kidneys in cases in which the functions of the lungs or liver were imperfectly performed, he was led to the result, that sulphur, not combined with oxygen in the form of sulphuric acid, existed in the urine to the amount of from three to five grains in the course of a day; and also that phosphorus, not in the state of phosphate, was in the same period excreted by the same channel, to the extent of nearly six grains.

“On some peculiarities of Fœtal Digestion.” By George Robinson, M.D. Communicated by William Bowman, Esq., F.R.S.

The author endeavours to show, contrary to the assertions of Dr. Robert Lee, that the human fœtus, in common with that of all the